



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1416
Alexandria, Virginia 22313-1416
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,663	03/23/2001	Robert Z. Stodilka	SIM0075	4259

7590 05/21/2003
Baker & Daniels
111 East Wayne Street Suite 800
Fort Wayne, IN 46802

EXAMINER

LEE, SHUN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/744,663

Applicant(s)

STODILKA ET AL.

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40-54 is/are allowed.
- 6) ☒ Claim(s) 1, 14, 18, 27, 28, 30, 31, 35, 36 and 55 is/are rejected.
- 7) ☒ Claim(s) 2-13, 15-17, 19-26, 29, 32-34, 37-39 and 56-67 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 14, 18, 27, 28, 30, 31, 35, 36, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Panin *et al.* (US 6,539,103) in view of Hasegawa *et al.* (US 5,376,795).

In regard to claims **14**, **18**, and **27**, Panin *et al.* disclose (Fig. 1) a system comprising:

- (a) means (10; column 4, lines 43-65) for taking emission tomography images of a region of interest of a subject under observation to form a three-dimensional image of said region of interest (column 5, line 56 to column 6, line 11);
- (b) memory (110, 130) to store said emission tomography images of a region of interest of a subject under observation, said memory also storing at least one three-dimensional computer model of said region of interest, said computer model representing or approximating the density distribution within said region of interest as a guide to the application of attenuation correction, said computer model being created (column 6, lines 15-30) from image data of other subjects thereby to avoid the need to image said subject under observation to create said computer model; and
- (c) a processor (100) for registering or aligning (column 8, line 58 to column 9, line 23) said computer model with said emission tomography images and for applying (column 5, line 56 to column 6, line 6) attenuation correction to said emission tomography images using said aligned computer model as a guide.

The system of Panin *et al.* lacks applying scatter correction. Hasegawa *et al.* teach (column 6, lines 8-22) that in addition to attenuation correction, other physical

perturbations such as scattering can also be corrected. Therefore it would have been obvious to one having ordinary skill in the art to apply scatter correction in the system of Panin *et al.*, in order to correct for additional physical perturbations.

In regard to claims **1** and **55**, the method steps are implicit for the modified apparatus of Panin *et al.* since the structure is the same as the applicant's apparatus of claims 14, 18, and 27.

In regard to claim **28**, Panin *et al.* in view of Hasegawa *et al.* is applied as in claims 1, 14, 18, 27, and 55 above. Panin *et al.* also disclose (column 9, lines 24-31) an image processor (100 in fig. 1) and that the invention can be implemented by software (*i.e.*, a computer readable medium including computer program code) and hardware configuration such as one integrated data processor or computer.

In regard to claim **30** (which is dependent on claim 1) and claim **35** (which is dependent on claim 14), Panin *et al.* also disclose (column 6, lines 15-30) that the computer model is created from transmission images or x-ray CT scans of the region of interest of other subjects.

In regard to claim **31** (which is dependent on claim 30) and claim **36** (which is dependent on claim 35), Panin *et al.* also disclose (column 6, lines 15-30; column 8, lines 35-39) that the transmission images or x-ray CT scans are taken from a variety of other subjects and average thereby to create the computer model.

Allowable Subject Matter

5. Claims 40-54 are allowed.

6. Claims 2-13, 15-17, 19-26, 29, 32-34, 37-39, and 56-67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be directed to a nonobvious improvement over the invention patented in US Patent 6,539,103. The improvements comprise in combination with other recited elements, aligning (56 in Fig. 2) a functional component of the computer model simulating a SPECT or PET scan of the region of interest and for generating a set of spatial transformation parameters and aligning (58 in Fig. 2) an anatomical component of said computer model simulating a transmission scan of the region of interest using the set of spatial transformation parameters as recited in claim 29; and that the computer model is in the form of a two-component atlas (see third paragraph on pg. 6 of the specification and 54 in Fig. 2) as recited in claim 2 (and claims 3-13 which depend from claim 2), claim 15 (and claims 16-17 which depend from claim 15), claim 19 (and claims 20-26 which depend from claim 19), claim 32 (and claims 33-34 which depend from claim 32), claim 37 (and claims 38-39 which depend from claim 37), claim 40 (and claims 41-45 which depend from claim 40), claim 46 (and claims 47-48 which depend from claim 46), claim 49 (and claims 50-54 which depend from claim 49), and claim 56 (and claims 57-67 which depend from claim 56).

Response to Arguments

8. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers

Application/Control Number: 09/744,663

Page 7

Art Unit: 2878

for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SL
May 12, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2806